

AMENDMENTS TO THE CLAIMS

1-27. (CANCELED)

28. (NEW) A loaded antenna comprising:

a radiating element comprising a first part and a second part;
the first part comprising at least one conducting surface; and
the second part comprising a loading structure, the loading structure comprising at least one conducting strip connected at at least one point on an edge of the at least one conducting surface, the maximal width of the at least one conducting strip being less than a quarter of the longest straight edge of the conducting surface; and

wherein at least a portion of the at least one conducting surface is a multilevel structure comprising a plurality of polygons, all of the plurality of polygons having at least four and the same number of sides, a plurality of the plurality of polygons being electromagnetically coupled via capacitive coupling or ohmic contact to define a plurality of contact regions and wherein, for at least 75% of the plurality of electromagnetically coupled polygons, a contact region is less than 50% of the perimeter of an electromagnetically coupled polygon.

29. (NEW) The loaded antenna of claim 28, wherein:

a shape of at least one of the at least one conducting strip comprises a curve;
wherein the curve comprises a minimum of two segments and a maximum of nine segments; and

wherein each segment forms an angle with an adjacent segment so that no pair of adjacent segments defines a larger straight segment.

30. (NEW) The loaded antenna of claim 28, wherein two tips of at least one of the at least one conducting strip are connected at two points on a perimeter of the first part.

31. (NEW) The loaded antenna of claim 28, wherein:

the loading structure comprises at least two conducting strips; and
a tip of a first of the at least two conducting strips and a tip of a second of the at least two conducting strips are connected.

32. (NEW) The loaded antenna of claim 28, wherein:
the loading structure comprises at least two conducting strips; and
both tips of a first of the at least two conducting strips are connected to a second of the at least two conducting strips.
33. (NEW) The loaded antenna of claim 28, wherein:
the loading structure comprises at least two conducting strips; and
a first tip of a first of the at least two conducting strips is connected to a second of the at least two conducting strips; and
a second tip of the first of the at least two conducting strips is connected to the at least one conducting surface.
34. (NEW) The loaded antenna of claim 28, wherein the loading structure comprises at least two conducting strips connected at a plurality of points on a perimeter of the at least one conducting surface.
35. (NEW) The loaded antenna of claim 28, wherein at least one conducting surface and the loading structure are lying on a common flat or curved surface.
36. (NEW) The loaded antenna of claim 28, wherein:
the antenna comprises at least two conducting surfaces;
a second conducting surface of the at least two conducting surfaces features a smaller area than a first conducting surface of the at least two conducting surfaces; and
at least one conducting strip of the at least one conducting strip is connected to the first conducting surface at a first end and to the second conducting surface at a second end.
37. (NEW) The loaded antenna of claim 28, wherein a perimeter of the at least one conducting surface is of shaped as one of a triangle, a square, a rectangle, a trapezoid, a pentagon, a hexagon, a heptagon, an octagon, a circle, and an ellipse.

38. (NEW) The loaded antenna of claim 27, wherein, due to the loading structure, the loaded antenna has a multiband behavior involving more operating bands compared to an identical antenna without the loading structure.

39. (NEW) A loaded antenna comprising:
a radiating element comprising a first part and a second part;
the first part comprising at least one conducting surface; and
the second part comprising a loading structure, the loading structure comprising at least one conducting strip connected at at least one point on an edge of the at least one conducting surface, the maximal width of the at least one conducting strip being less than a quarter of the longest straight edge of the conducting surface;

wherein the at least one conducting strip is shaped as a space-filling curve comprising at least ten segments connected so that no pair of adjacent segments defines a longer straight segment and, if the curve is periodic along a fixed straight direction of space, the period is defined by a non-periodic curve comprising at least ten connected segments and no pair of the adjacent and connected segments defines a straight longer segment; and

wherein the space-filling curve intersects with itself at most only at its initial and final point.

40. (NEW) The loaded antenna of claim 39, wherein a perimeter of the at least one conducting surface is polygonal in shape.

41. (NEW) The loaded antenna of claim 39, wherein at least a part of a perimeter of the at least one conducting surface is shaped as a space-filling curve.

42. (NEW) The loaded antenna of claim 39, wherein at least a portion of the at least one conducting surface is shaped as a multilevel structure.

43. (NEW) The loaded antenna of claim 39, wherein two tips of at least one of the at least one conducting strip are connected at two points on a perimeter of the at least one conducting surface.

44. (NEW) The loaded antenna of claim 39, wherein the at least one conducting surface and the loading structure are lying on a common flat or curved surface.

45. (NEW) The loaded antenna of claim 39, wherein:
the at least one conducting strip comprises a first conducting strip and a second conducting strip;
the first conducting strip is connected at at least one point to a perimeter of the at least one conducting surface; and
a tip of the second conducting strip is connected to the first conducting strip.

46. (NEW) The loaded antenna of claim 39, wherein:
the at least one conducting surface comprises a first conducting surface and a second conducting surface;
the second conducting surface has a smaller area than the first conducting surface; and
the at least one conducting strip is connected to the first conducting surface at a first end and to the second conducting surface at a second end.

47. (NEW) The loaded antenna of claim 39, wherein, due to the loading structure, the loaded antenna has a multiband behavior involving more operating bands compared to an identical antenna without the loading structure.

48. (NEW) A loaded antenna comprising:
a radiating element comprising a first part and a second part;
the first part comprising at least one conducting surface; and
the second part comprising a loading structure, the loading structure comprising at least one conducting strip connected at at least one point on an edge of the at least one conducting surface, the maximal width of the at least one conducting strip being less than a quarter of the longest straight edge of the conducting surface; and
wherein at least a portion of the at least one conducting surface is a multilevel structure comprising a plurality of polygons, all of the plurality of polygons having at least four and the same number of sides, the plurality of polygons being generally identifiable by the free perimeter thereof as a geometrical element and wherein projection of the exposed perimeters of

the plurality of polygons defines the least number of polygons necessary to form a generally distinguishable element where polygon perimeters are interconnected, a plurality of the plurality of polygons being electromagnetically coupled via capacitive coupling or ohmic contact to define a plurality of contact regions and wherein, for at least 75% of the plurality of electromagnetically coupled polygons, a contact region is less than 50% of the perimeter of an electromagnetically coupled polygon.